

Part I

Organizational Matters

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- ▶ Modul: IN2003

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- ▶ Name: “Efficient Algorithms and Data Structures”
“Effiziente Algorithmen und Datenstrukturen”

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- ▶ ECTS: 8 Credit points

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- ▶ Lectures:
 - ▶ 4 SWS
 - Mon 10:00–12:00 (Room Interim2)
 - Fri 10:00–12:00 (Room Interim2)

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- ▶ Webpage: <http://www14.in.tum.de/lehre/2019WS/ea/>

- ▶ Required knowledge:

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 - ▶ IN0001, IN0003
 - ▶ **“Introduction to Informatics 1/2”**
 - ▶ “Einführung in die Informatik 1/2”

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“**Basic Theoretic Informatics**”
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“Diskrete Strukturen” (DS)

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 - ▶ IN0015
 - ▶ **“Discrete Structures”**
 - ▶ “Diskrete Strukturen” (DS)
 - ▶ IN0018
 - ▶ **“Discrete Probability Theory”**
 - ▶ “Diskrete Wahrscheinlichkeitstheorie” (DWT)

The Lecturer

- ▶ Harald Räcke
- ▶ Email: raecke@in.tum.de
- ▶ Room: 03.09.044
- ▶ Office hours: (by appointment)

Tutorials

A01 Monday, 12:00–14:00, 00.08.038 (Stotz)

A02 Monday, 12:00–14:00, 00.09.038 (Guan)

A03 Monday, 14:00–16:00, 02.09.023 (Stotz)

B04 Tuesday, 10:00–12:00, 00.08.053 (Czerner)

B05 Tuesday, 14:00–16:00, 00.08.038 (Czerner)

C06 Wednesday, 10:00–12:00, 03.11.018 (Guan)

E07 Friday, 12:00–14:00, 00.13.009 (Stotz)

Assignment sheets

In order to pass the module you need to pass an exam.

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Assignment Sheets:

- ▶ An assignment sheet is usually made available on Monday on the module webpage.

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- ▶ **You should submit solutions in groups of up to 2 people.**

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- ▶ Submissions must be handwritten by a member of the group. Please indicate who wrote the submission.

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- ▶ Don't forget name and student id number for each group member.

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- ▶ If you obtain a bonus your grade will improve according to the following function

$$f(x) = \begin{cases} \frac{1}{10} \text{round} \left(10 \left(\frac{\text{round}(3x)-1}{3} \right) \right) & 1 < x \leq 4 \\ x & \text{otw.} \end{cases}$$

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 - ▶ 3.3 → 3.0

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 - ▶ 2.0 → 1.7

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Examples:

- ▶ 3.3 → 3.0
- ▶ 2.0 → 1.7
- ▶ 3.7 → 3.3
- ▶ 1.0 → 1.0
- ▶ > 4.0 no improvement

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Requirements for Bonus

- ▶ 50% of the points are achieved on submissions 2–8,
- ▶ 50% of the points are achieved on submissions 9–14,
- ▶ each group member has written at least 4 solutions.

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- ▶ Foundations
 - ▶ Machine models
 - ▶ Efficiency measures
 - ▶ Asymptotic notation
 - ▶ Recursion

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 - ▶ Union/Find data structures
- ▶ Cuts/Flows
- ▶ Matchings

2 Literatur

-  Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman:
The design and analysis of computer algorithms,
Addison-Wesley Publishing Company: Reading (MA), 1974
-  Thomas H. Cormen, Charles E. Leiserson, Ron L. Rivest,
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2 Literatur



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2 Literatur



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Christos H. Papadimitriou, Kenneth Steiglitz:

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